# VERIFIED TRANSLATION

I, the undersigned Margareta Backen, technical translator, of Bellevuevägen 46, S-217 72 MALMÖ, Sweden, do hereby declare:

(1) That I am well familiar with the Swedish and English languages;

(2) That the attached is a true and accurate translation into the English language of the Swedish text of this Patent Application entitled "Information Management System" that was filed in the US Patent and Trademark Office on 9 June 2000 and at the same time a true and accurate translation of Swedish priority application No. 0001239-3 filed in the Swedish Patent and Registration Office on 5 April 2000.

(3) That all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under § 1001 of title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: this 26th day of September 2006

Margareta Backen

UNITED STATES PATENT APPLICATION

OF

LINUS WIEBE, CHRISTER FÅHRAEUS
AND
PETTER ERICSON

FOR

# INFORMATION MANAGEMENT SYSTEM

Field of the Invention

The present invention relates to a global information management system, a product which is intended to be used in the information management system and a method for managing information.

Prior Art

US 5,852,434 discloses a device which makes it possible for a user to feed handwritten and hand-drawn information into a computer at the same time as the information is written/drawn on the writing surface. The device comprises a writing surface on which a position code is arranged which codes X-Y coordinates, and a special pen with a pen point with which the user can write or draw on the writing surface. The pen also has a light source for illuminating the position code and a CCD sensor for receiving the light which is reflected from the position code. The position information received by the CCD sensor is sent to a computer for processing.

Summary of the Invention

It is an object of the present invention to increase the possibility of managing information which is written/drawn on a writing surface and at the same time recorded digitally by means of a pen.

This object is achieved completely or partially by means of an information management system according to claim 1, a product according to claim 10 and a method according to claim 12.

More specifically, the invention relates, according to a first aspect, to a global information management system which is intended for managing information which is represented in the form of absolute coordinates and which is based on the use of an absolute-position-coding pattern which defines an imaginary surface which consists of all points, the absolute coordinates of which can be coded by the absolute-position-coding pattern, at least two unique areas being defined on the imaginary surface, each of which is dedicated to a predetermined information management, so that the management of an information item which is represented by the absolute coordinates of at least one point on the imaginary surface is done on the basis of where the point is placed on the imaginary surface.

According to prior art, an absolute-position-coding pattern is used locally for the single purpose of recording handwritten information. The absolute-position-coding pattern then only needs to be used for coding absolute positions locally on the writing surface on which the information is written. Conversely, according to the invention, absolute positions on an imaginary surface which is made up of all points which can be coded with the aid of the absolute-position-coding pattern are used. By dedicating different parts of the imaginary surface to different types of information management, it is possible both to record information and to control how the infor-

mation is to be managed with the aid of the absolute-position-coding pattern. Different products are thus provided with different subsets of the absolute-position-coding pattern on the basis of how the information which is written on the product is to be managed.

One example to be mentioned is that one area can be dedicated to information which will be sent to a predetermined address in a computer network.

Another example to be mentioned is that another area can be dedicated to information in the form of notes which will be stored in the computer of a user.

The unique areas can have different shapes and different sizes. Together, they do not need to cover all of the imaginary surface but they can do so. The areas can be divided into subareas which are dedicated to variants of the information management which the main area is dedicated to. The subareas can also be dedicated to different parts, products or the like. The subareas, in turn, can be divided into different partial areas.

Different areas on the imaginary surface can be dedicated to different purposes for different time periods. Different areas can be placed under license for different time periods, special markets or special applications.

The imaginary surface is described as imaginary to show that the surface is an imaginary surface which is generated by all the absolute coordinates which the

absolute-position-coding pattern can code. The system is also described as global because the division of the imaginary surface into different unique areas is used consistently in the whole system, which, however, does not need to be global in the sense that it is worldwide.

The global information management system can be said to arise and exist when some part utilizes the characteristic of an absolute-position-coding pattern that different coordinate areas which are coded by different subsets of the pattern can be dedicated to different information management purposes. In a preferred embodiment, the information management system comprises a computer system which stores information about the location of the different unique areas on the imaginary surface. The computer system can comprise one or more computers which store the above-mentioned information. The essential factor is that, in a collective way, one keeps track of where the different areas are located so that the areas can be utilized consistently in the system. Suitably, information about available areas and what the different occupied areas are dedicated to is also stored.

In an advantageous embodiment, on the imaginary surface, at least one function area is defined, which is dedicated to represent a function, so that detection of the absolute coordinates of a point within this function area results in execution of said function.

In addition to unique areas which are dedicated to different information management purposes there can thus also be one or more function areas on the imaginary surface. The former areas are used for recording information which is treated in different ways depending on the area. The function area is not used for recording of information but defines a function which is to be executed. As an alternative, the function can be described as a command. In the extreme case, the function area can comprise a single point, since the function area does not have to enable recording of handwritten information. In the normal case, however, the function area comprises a plurality of points on the imaginary surface to facilitate the reading of a corresponding subset of the absolute-position-coding pattern. The function or command is typically intended to be executed with respect to information which has been recorded with the aid of a subset of the absolute-position-coding pattern which codes one of said unique areas which are dedicated to different information management purposes.

What has been said above with respect to the information areas also applies to the function areas.

As an example, a user can write information on a notepad which has a writing surface provided with a subset of the absolute-position-coding pattern, the subset coding coordinates within an area of the imaginary surface which is dedicated to notes. After that, the user

can record absolute coordinates from a function area which is coded with a second subset of the absolute-position-coding pattern, the second subset being imaged in a box on the writing surface of the notepad. The function can be, for example, to store the recorded information in the computer of the user, the box being marked "store". As will be described in greater detail below, the detection of the second subset of the absolute-position-coding pattern results in the information written on the first subset being stored in the computer of the user.

In a preferred embodiment, information about the location of said at least one function area on the imaginary surface is stored in the above-mentioned computer system so that information is collected about where all the different areas on the imaginary surface are located so that a consistent utilization is made possible.

The function which is defined by the function area can be, for example, any of the functions to store information, to send information and to convert information. The information can be sent in different formats and via different "transport systems". The information can be sent, for example, as a graphical e-mail, as an SMS or as a fax. It can be sent from a user unit in the form of a digital pen via, for example, a mobile telephone or a computer or a PDA to a receiver which, for example, can

also be a mobile telephone, a PDA or a computer, in particular a computer connected to the Internet.

The information is preferably sent in graphical form, i.e. as sequences of recorded coordinates. All recorded coordinates which represent information can either be sent or processed into a compressed form or another format. A character recognition may also be carried out so that the information can be sent in character-coded format.

The information can be stored in a unit which is synchronized with the digital pen, for example a computer.

The converting function can comprise a function which means that the information is, for example, translated into a predetermined language, that its characters are interpreted, that the information is encrypted or converted in some other way.

It does not have to be a single party which administers all information management in the information management system but different parties can have access to different areas on the imaginary surface. However, the party which is responsible for the information management system must, as mentioned above, know which areas on the imaginary surface are occupied and which are available. The computer system advantageously stores information about a holder of at least one of said information management areas.

Furthermore, the data system may need to include information about what certain information management and function areas are dedicated to so that the computer system can carry out a part of the information management. Certain information which is represented by coordinates of points within certain areas can, for example, always be sent to the computer system which carries out certain processing of the information and subsequently sends it on to a receiver.

In a preferred embodiment, the information management system can also comprise at least one digital pen which is arranged to record absolute coordinates from a product which is provided with a subset of said absolute-position-coding pattern.

The digital pen can comprise a sensor which can detect the absolute-position-coding pattern. It has advantageously a normal pen point so that information can be written on a writing surface which is provided with a subset of the absolute-position-coding pattern and, at the same time, is recorded digitally with the aid of the sensor. The information which is recorded with the pen in the form of absolute coordinates generally represents graphical information which is written/ drawn with the pen on said subset of the absolute-position-coding pattern. However, it can also represent a function (a command).

The information management system can also advantageously comprise at least one product which is provided with at least one subset of said absolute-position-coding pattern. The products can be any products whatever, in particular products with writing surfaces. The writing surfaces do not need to allow writing with a normal pen point but can be writing surfaces on which the writing is done by the pen being conducted in a writing movement. The products are provided with different subsets of the absolute-position-coding pattern depending on how the information is to be processed.

According to a second aspect of the invention, it relates to a product which is intended to be used in a global information management system described above. The product has a writing area which is provided with a first subset of the absolute-position-coding pattern to enable digital recording of graphical information which is written on said first subset, and a function field which is provided with a second subset of the absolute-position-coding pattern, the second subset defining a function which is to be executed with respect to the graphical information recorded.

The advantages of this product are apparent from the above.

According to a third aspect of the invention, it relates to a method for managing information which is represented by absolute coordinates, comprising the steps

of defining at least two unique areas, each one of which is dedicated to a predetermined information management, on an imaginary surface which consists of all the points, the absolute coordinates of which can be coded by an absolute-position-coding pattern, so that the management of an information item which is represented by the absolute coordinates of at least one point on the imaginary surface is done in dependence on where said point is placed on the imaginary surface.

The advantages of this method are apparent from the above.

Brief Description of Drawings

The present invention will now be described by means of embodiments with reference to the accompanying drawings, in which

Fig. 1 schematically shows an imaginary surface with different areas which are dedicated to different purposes,

Fig. 2 schematically shows a sheet of paper which is provided with a subset of an absolute-position-coding pattern,

Fig. 3 schematically shows how symbols contained in the absolute-position-coding pattern can be built up,

Fig. 4 schematically shows an example of 4x4 symbols which are used for coding a position, and

Fig. 5 schematically shows an embodiment of a digital pen which can be used in an information management system.

Description of Preferred Embodiments

Fig. 1 diagrammatically shows an imaginary surface I which consists of or is generated by all the points, the absolute coordinates of which can be coded by an absolute-position-coding pattern.

On the imaginary surface, four different coordinate areas A-D are defined. The areas are of different size and of different shapes. They are located at a distance from one another. The relationship between the size of the areas and the size of the imaginary surface can be quite different from what is shown.

The different coordinate areas are dedicated to different functions. In this example, the first coordinate area A is dedicated to recording notes, the second coordinate area B is dedicated to calendar information, i.e. information which is to be stored associated with a certain time or time interval, the third coordinate area C is dedicated to recording handwritten information which always is to be sent to a predetermined server unit on the Internet and the fourth coordinate area D is dedicated to a specific function.

The use of the coordinate areas will be described in greater detail below.

In a real information management system, the number of dedicated coordinate areas can naturally be much greater.

Information about the extent and location of the imaginary surface and the extent of the different coordinate areas which have been dedicated to different information management purposes or different functions which are to be executed with respect to information which is processed in the system is stored in a computer system (not shown). The computer system can be a passive part of the information management system. It does not have to execute any part of the information management itself and thus does not have to be connected to the remaining units in the information management system. The computer system, however, is suitably an active part of the information management system as will be described in greater detail below.

As can be seen from the above, the information management system is thus based on the use of an absolute-position-coding pattern. This pattern can be built up in different ways, for example as is shown in the documents stated by way of introduction. For the absolute-position-coding pattern to be able to be used for recording information with high resolution and also to be used in a system which allows very varied processing of the information, the absolute-position-coding patterns should be designed in such a manner, however, that it can

code the coordinates of a very large number of points with high resolution. Furthermore, the absolute-position-coding pattern should be coded graphically in such a manner that it does not disturb the surface on which it is arranged. Finally, it must be simple to detect so that the coordinates can be determined with high reliability.

An absolute-position-coding pattern which meets the above-mentioned requirements is described in Swedish Patent Application No. 9903541-2 filed by the Applicant on 1 October 1999.

This pattern is built up of extremely small dots with a nominal intermediate space of 0.3 mm. Any part of the pattern containing 6 x 6 such dots defines the absolute coordinates of a point on the imaginary surface. Each point on the imaginary surface is thus defined by a subset of 1.8 mm x 1.8 mm of the absolute-position-coding pattern. By determining the position of the 6 x 6 dots on a sensor in a digital pen which is used for reading the pattern, a position can be calculated on the imaginary surface with a resolution of 0.03 mm. The imaginary surface is generated by all the points, the absolute coordinates of which can be coded by the pattern. Since each point is coded with 6 x 6 dots, each of which can assume one of four values, $2^{72}$ points can be coded which, with the above-mentioned nominal intermediate space between the dots, corresponds to a surface of 4.6 million $km^2$.

The absolute-position-coding pattern can be printed on any type of paper or other material which provides for a resolution of approx. 1000 dpi. The paper can have any size and shape depending on the intended use. The pattern can be printed with a standard offset printing technique. Normal black carbon-based ink or any other ink which absorbs IR light can be advantageously used. This entails that other inks including black ink which is not carbon based can be used for overlaying other print on the absolute-position-coding pattern without disturbing the reading thereof.

A surface which is provided with the above-mentioned pattern printed with carbon-based black ink will only appear as a slight gray toning of the surface (1-3% blacking) to the eye, which is user-friendly and esthetically pleasing.

Naturally, fewer or more dots than described above can be used for defining a point on the imaginary surface and a greater or lesser distance between the dots can be used in the pattern. The examples are given only to show a presently preferred implementation of the pattern.

In the text which follows, the preferred absolute-position-coding pattern is described in greater detail.

Fig. 2 shows a part of a product in the form of a sheet of paper 1 which on its surface 2 is provided with an optically readable absolute-position-coding pattern 3 (below referred to as position-coding pattern) which

enables position determination and, more specifically, determination of absolute coordinates of points on the imaginary surface, to be performed. The position-coding pattern consists of symbols 4 which are systematically arranged over the surface 2 so that it has a "patterned" appearance. Depending on the size of the symbols, the above patterning can be perceived as a gray toning as described above. The sheet of paper has an x coordinate axis and a y coordinate axis.

The position-coding pattern comprises a virtual raster which thus is neither visible to the human eye nor can be detected directly by a device which is to determine positions on the surface, and a plurality of symbols 4, each being able to assume one of four values "1" - "4" as will be described in the text which follows. In this context, it should be pointed out that the position-coding pattern in Fig. 2 has been greatly enlarged for the sake of clarity. It is also shown only on a part of the sheet of paper.

The position-coding pattern is arranged in such a manner that the absolute coordinates of a point on the imaginary surface are coded by the symbols on a part-surface of the sheet of paper, and thereby by the position-coding pattern, with a predetermined size. A first and a second part-surface 5a, 5b are shown by dashed lines in Fig. 2. The part of the position-coding pattern (in this case 3 x 3 symbols) which is located on the

first part-surface 5a codes the coordinates of a first point and the part of the position-coding pattern which is located on the second part-surface 5b codes the coordinates of a second point on the imaginary surface. The position-coding pattern is thus partially common to the adjoining first and second points. Such a position-coding pattern is referred to as "floating" in this application.

Figs 3a-d show an embodiment of a symbol which can be used in the position-coding pattern. The symbol comprises a virtual raster point 6 which is represented by the intersection between the raster lines, and a marking 7 which has the form of a dot. The value of the symbol depends on where the marking is located. In the example in Fig. 3, there are four possible locations, one on each of the raster lines extending from the raster points. The displacement from the raster point is equal for all values. In the text which follows, the symbol has the value "1" in Fig. 3a, the value 2 in Fig. 3b, the value 3 in Fig. 3c and the value 4 in Fig. 3d. In other words, there are four different types of symbol.

Each symbol can thus represent four values "1-4". This means that the position-coding pattern can be divided into a first position code for the x coordinate and a second position code for the y coordinate. The dividing is done in accordance with the following:

| Symbol value | x code | y code |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 0 | 1 |
| 3 | 1 | 0 |
| 4 | 0 | 0 |

Thus, the value of each symbol is translated into a first digit, in this case bit, for the x code and a second digit, in this case bit, for the y code. In this manner, two completely independent bit patterns are obtained. The patterns can be combined into a common pattern which is coded graphically with the aid of a plurality of symbols according to Fig. 3.

The coordinates of each point are coded with the aid of a plurality of symbols. In this example, 4x4 symbols are used for coding a position in two dimensions, i.e. an x coordinate and a y coordinate.

The position code is built up with the aid of a number series of ones and zeros which have the characteristic that no sequence of four bits occurs more than once in the series. The number series is cyclic, which means that the characteristic also applies if the end of the series is coupled together with its beginning. Thus, a sequence of four bits always has an unambiguously determined position in the number series.

The series can be maximally 16 bits long if it is to have the characteristic for sequences of 4 bits described

above. In this example, however, only a 7-bit-long series according to the following is used:

"0 0 0 1 0 1 0".

This series contains seven unique sequences of four bits which code a position in the series according to the following:

| Position in the series | Sequence |
|---|---|
| 0 | 0001 |
| 1 | 0010 |
| 2 | 0101 |
| 3 | 1010 |
| 4 | 0100 |
| 5 | 1000 |
| 6 | 0000 |

For coding the x coordinate, the number series is written sequentially in columns over the entire surface that is to be coded. The coding is based on the difference or position displacement between numbers in adjoining columns. The magnitude of the difference is determined by the position in the number series at which the column is allowed to begin (i.e. with which sequence). More specifically, if one takes the difference modulo 7 between, on the one hand, a number which is coded by a four-bit sequence in a first column and which thus can have the value (position) 0-6, and, on the other hand, a corresponding number (i.e. the sequence on the same

"level") in an adjoining column, the result will be the same irrespectively of where along the two columns the comparison is made. Using the difference between two columns, an x coordinate can thus be coded which is constant for all y coordinates.

Since each position on the surface is coded with 4x4 symbols in this example, three differences (having the value 0-6) are available according to the above for coding the x coordinate. The coding is then carried out in such a manner that of the three differences, one will always have the value 1 or 2 and the other two will have the value in the range 3-6. Thus, no differences are allowed to be zero in the x code. In other words, the x code is constructed in such a manner that the differences will be as follows:

(3-6) (3-6) (1-2) (3-6) (3-6) (1-2) (3-6) (3-6) (1-2)...

Each x coordinate is thus coded with two numbers between 3 and 6 and a subsequent number which is 1 or 2. If three is subtracted from the high numbers and one from the low one, a number in mixed base is obtained which directly provides a position in the x direction from which the x coordinate can be determined directly, as shown in the example below.

Using the principle described above, it is thus possible to code x coordinates 0,1,2... with the aid of numbers which represent three differences. These differences are coded with a bit pattern which is based on the above

number series. Finally, the bit pattern can be coded graphically with the aid of the symbols in Fig. 3.

In many cases, when reading 4x4 symbols it will not be possible to get a complete number which codes the x coordinate, but parts of two numbers. Since the least significant part of the numbers is always 1 or 2, however, a complete number can be reconstructed in a simple manner.

The y coordinates are coded in accordance with the same principle as is used for the x coordinates. The cyclic number series is written repeatedly in horizontal rows over the surface which is to be position-coded. Exactly as in the case of the x coordinates, the rows are allowed to begin at different positions, i.e. with different sequences, in the number series. However, it is not differences which are used for the y coordinates but the coordinates are coded with numbers which are based on the starting position of the number series in each row. When the x coordinate for 4x4 symbols has been determined, it is, in fact, possible to determine the starting positions in the number series for the rows which are included in the y code in the 4x4 symbols. In the y code, the most significant digit is determined by allowing this to be the only one which has a value in a specific range. In this example, one row of four is allowed to begin at position 0-1 in the number series to indicate that this row relates to the least significant digit in a y coordi-

nate, and the other three begin at position 2-6. In the y direction, there is thus a number series as follows: (2-6) (2-6) (2-6) (0-1) (2-6) (2-6) (2-6) (0-1) (2-6)... Each y coordinate is thus coded with three numbers between 2 and 6 and a subsequent number between 0 and 1.

If 1 is subtracted from the low number and 2 from the high ones, a position is obtained in the same manner as for the x direction, in the y direction in mixed base, from which the y coordinate can be determined directly.

With the above method, it is thus possible to code 4 x 4 x 2 = 32 positions in the x direction. Each such position corresponds to three differences, giving 3 x 32 = 96 positions. Furthermore, it is possible to code 5 x 5 x 5 x 2 = 250 positions in the y direction. Each such position corresponds to 4 rows, giving 4 x 250 = 1000 positions. Together, it is thus possible to code 96000 positions. Since the x coding is based on differences it is, however, possible to select the position at which the first number series begins. Taking into consideration that this first number series can begin at seven different positions, it is possible to code 7 x 96000 = 672000 positions. The starting position for the first number series in the first column can be calculated when the x coordinate has been determined. The above-mentioned seven different starting positions for the first series can code different sheets or writing surfaces on a product.

To further illustrate how this position-coding pattern works, a specific example follows below which is based on the embodiment of the position code described.

Fig. 4 shows an example of an image with 4x4 symbols which are read by a device for position determination.

These 4x4 symbols have the following values:

4 4 4 2

3 2 3 4

4 4 2 4

1 3 2 4

These values represent the following binary x and y codes:

| x code: | y code: |
|---|---|
| 0 0 0 0 | 0 0 0 1 |
| 1 0 1 0 | 0 1 0 0 |
| 0 0 0 0 | 0 0 1 0 |
| 1 1 0 0 | 1 0 1 0 |

The vertical x sequences code the following positions in the number series: 2 0 4 6. The differences between the columns become -2 4 2, which modulo 7 gives 5 4 2, which, in mixed base, codes position (5-3) x 8 + (4-3) x 2 + (2-1) = 16 + 2 + 1 = 19. Since the first coded x position is position 0, the difference which lies in the range 1-2 and appears in the 4x4 symbols is the 20th such difference. Since, furthermore, there are a total of three columns for each such difference and there is a start column, the vertical sequence

farthest to the right in the 4x4 x code belongs to the 61st column in the x code (3 x 20 + 1 = 61) and the one farthest to the left belongs to the 58th.

The horizontal y sequences code the positions 0 4 1 3 in the number series. Since these series begin in the 58th column, the starting position for the rows are these numbers minus 57 modulo7, providing the starting positions 6 3 0 2. Translated into digits in the mixed base, this becomes 6-2, 3-2, 0-0, 2-2 = 4 1 0 0 where the third digit is the least significant digit in the number in question. The fourth digit is then the most significant digit in the next number. In this case, it must be the same as in the number in question. (The exception is when the number in question consists of the highest possible digits in all positions. It is then apparent that the beginning of the next number is one greater than the beginning of the number in question).

The position for the four-digit number becomes 0x50 + 4x10 +1x2 + 0x1 = 42 in the mixed base.

The third row in the y code is thus the 43rd which has the starting position 0 or 1, and since there are four rows in total in each such row, the third row is number 43x4=172.

Thus, in this example, the position of the topmost left corner for the 4x4 symbol group is (58,170).

Since the x sequences in the 4x4 group begin in row 170, the x columns of the entire pattern begin at posi-

tions ((2 0 4 6) -169) modulo 7 = 1 6 3 5 of the number series. Between the last starting position (5) and the first starting position, the numbers 0-19 are coded in mixed base and by adding together the representations for the numbers 0-19 in mixed base, the total difference between these columns is obtained. A primitive algorithm for doing this is to generate these twenty numbers and directly add together their digits. The sum obtained is called s. The sheet or writing surface is then given by (5-s)modulo7.

In the example above, an embodiment has been described in which each position is coded with 4 x 4 symbols and a number series with 7 bits used. Naturally, this is only an example. Positions can be coded with more or fewer symbols. The number of symbols does not need to be the same in both directions. The number series can have different lengths and does not need to be binary but may be built up on another base. Different number series can be used for coding in the x direction and coding in the y direction. The symbols can have different numbers of values. As described above, coding with 6 x 6 symbols is presently preferred, each symbol being able to assume four values. A pereon skilled in the art can easily generalize the examples above to relate to such coding.

Furthermore, in the example above, the marking is a dot. Naturally, it can have a different appearance. For

example, it may consist of a line or other indication which begins in the virtual raster point and extends from that to a predetermined position.

In the example above, the symbols are used within a square part-surface for coding a position. The part-surface can have another shape, for example hexagonal. The symbols do not have to be arranged in rows and columns at an angle of 90 degrees to one another but can also be arranged in other configurations.

For the position code to be detectable, the virtual raster must be determined. This can be done by studying the distance between different markings. The shortest distance found between two markings must originate from two adjoining symbols having the value 1 and 3 so that the markings are located on the same raster line between two raster points. When such a pair of markings has been detected, the associated raster points can be determined with knowledge of the distance between the raster points and the displacement of the markings from the raster points. Once two raster points have been located, further raster points can be determined by measured distances to other markings and with knowledge of the relative distance of the raster points.

The absolute-position-coding pattern described above can be applied to all conceivable products on which information is to be recorded by means of coordinate recording. The products can be of different materials,

paper, plastic, etc. For example, the absolute-position-coding pattern can be integrated in or applied to a computer screen. As a result, different positions on the screen can be read with the aid of a digital pen which detects the pattern. In this manner, a screen with the same function as a touch screen is produced, but which has advantages with respect to environmental resistance and possibilities of bending the screen.

An embodiment of a digital pen which can be used for recording information in the information management system according to the invention is shown schematically in Fig. 5. It comprises a casing 11 which has approximately the shape of a pen. In a short side of the casing there is an opening 12. The short side is intended to abut against or be held at a short distance from the surface on which a subset of the absolute-position-coding pattern is to be read for determining coordinates of at least one point on the imaginary surface.

The casing essentially accommodates an optical part, an electronics part and a power supply.

The optical part comprises at least one IR-light-emitting diode 13 for illuminating the surface which is to be imaged and a light-sensitive area sensor 14, for example a CCD or CMOS sensor, for recording a two-dimensional image. The IR light is absorbed by the dots in the position-coding pattern and in this way makes them visible to the sensor. The sensor advantageously records at

least 100 images per second. The optical part forms a digital camera.

The power supply for the device is obtained from a battery 15 which is mounted in a separate compartment in the casing.

The electronics part comprises image-processing means 16 for determining a position on the basis of the image recorded by the sensor 14 and, more specifically, a processor unit with a processor which is programmed for reading images from the sensor and determining in real time absolute coordinates of points on the imaginary surface on the basis of the position-coding pattern in the images. It is currently preferred for the processor to be a 70 MHz ARM-based processor.

In this embodiment, the digital pen also comprises a pen point 17, with the aid of which it is possible to write normal pigment-based writing on the surface provided with the position-coding pattern. The pen point 17 can be retracted and extended so that the user can control whether or not it is to be used. A button (not shown) for pushing the pen point in and out, in the same way as is done in a normal pen, can also function as switching button for the pen so that, when the pen point is pushed forward, the pen is activated.

The digital pen also comprises buttons 18, with the aid of which it is activated and controlled. It also has a transceiver 19 for wireless transmission, e.g. by means

of IR light or radio waves, of information to and from the device. The transceiver is preferably a Bluetooth™ transceiver.

The digital pen is also provided with a pressure sensor 20 which measures the pressure on the pen point 17 when it is used.

As mentioned, the position determination is carried out by the processor which thus must have software for locating and decoding the symbols in an image and for determining positions from the codes thus obtained. On the basis of the above example, a person skilled in the art can design the software which carries out position determination on the basis of an image of a part of a position-coding pattern.

Furthermore, the skilled person can design software for printing out the position-coding pattern, on the basis of the above description.

The processor can also comprise software which, on the basis of the recorded images, determines the angle between the pen point and the sheet of paper and also the turning of the pen. Software for this purpose is described in Applicant's Swedish Patent Application No. 0000952-2.

In a preferred embodiment, the processor determines the following information on the basis of each recorded image: a pair of x-y coordinates, the angle between the pen and the sheet of paper, the turning of the pen, the

pressure against the sheet of paper and also a time stamp on the basis of the point in time of the recording of the image. However, depending on how the information management system is constructed, it may be sufficient to record the pair of x-y coordinates, possibly together with one of the other parameters.

The x-y coordinates recorded can be processed and stored in a more compressed format. All recorded data can be stored in a buffer memory 21 awaiting transmission to an external unit. The digital pen can thus operate in stand-alone mode.

The processor can also have software for encrypting the information which is sent to external units.

The processor can also have limited information about different parts of the imaginary surface and what these are dedicated to. For example, the processor can advantageously contain information which makes it possible for it to recognize that certain points or coordinate areas on the imaginary surface represent certain functions or commands which are to be executed with respect to recorded information. Preferred commands which can be recognized in the pen are "store", "send", "to do", "address" and other similar basic commands.

The pen can advantageously have means which provide a signal when the pen detects a command. The signal serves to alert the user that a command has been recorded. The signal can be, for example, a sound signal or

a light signal. Naturally, these means can also be used for providing an indication of when the pen recorded handwritten information.

The pen can also advantageously contain information which makes it possible for it to distinguish between information which is to be stored in the pen and transferred to the user's personal computer, and information which is to be sent away to a predetermined IP address. More specifically, a coordinate area on the imaginary surface can be dedicated for information to always be sent to said IP address for further processing, as has been described above, which information is recorded with the aid of a subset of the absolute-position-coding pattern which corresponds to the coordinate area and which thus is then represented by coordinates of points which lie within this area.

The pen can have, but does not have to have, knowledge of what all the different coordinate areas on the imaginary surface are dedicated to. In any case, no single unit in the system has to have this knowledge, instead it can be distributed over a number of different units. As mentioned, however, for the administration of the system, there must be collective knowledge about which areas are already dedicated and which areas are available. Information about the precise use of a special area, however, can only be found with a person who at the time has the sole right to use the area. As an alterna-

tive, naturally, all information can be collected in one unit.

It is also a basic concept of the present information management system that only simple processing of the recorded information should occur in the pen. More complicated processing can occur in a computer with which the pen is communicating and in which software for processing information from the pen is installed and/or in a server which can contain very powerful software for, among other things, character recognition (OCR) and more advanced processing of the information.

This distribution of the processing makes it possible to produce the pens at relatively low cost. Furthermore, new applications can be added to the information management system without existing pens having to be upgraded. As an alternative, the user can update his pen at regular intervals so that it receives information about new dedicated areas and how the information related to these areas is to be processed.

In the embodiment above, the pattern is optically readable and the sensor is thus optical. As mentioned, the pattern can be based on another parameter than an optical parameter. In such a case, naturally, the sensor must be of a type which can read the parameter in question. It is preferred, however, that the pattern is optically readable since it is then relatively easy to arrange on different products and, in particular, paper.

In the embodiment above, the raster is a grid raster. It can also have other forms, for example hexagonal.

In the embodiment above, it is not the longest possible cyclic number series which is used. This provides a certain redundancy which can be used, for example, for checking the turning of the inputted group of symbols and thus the turning of the pen.

In the text which follows, the information management system will be illustrated by a number of examples of applications.

The applications in the information management system described above can be divided into three groups or types: 1) applications with analog input signal and digital output signal; 2) communication applications, and 3) service applications.

Applications belonging to the first group use the digital pen and the writing surface with absolute-position-coding pattern mainly for inputting information into a computer, a PDA or a mobile telephone.

A product with a writing surface, for example a notepad, can be provided with a first subset of the absolute-position-coding pattern on the writing surface itself, this subset coding coordinates of points within an area, for example, area A in Fig. 1, of the imaginary surface which is dedicated to notes. The product can also be provided with a square which contains a second subset

of the absolute-position-coding pattern, the second subset coding coordinates of points within an area of the imaginary surface which is dedicated to the function "store", for example coordinate area D in Fig. 1. When the user writes on the writing surface, the pen records a representation of what has been written in the form of a sequence of pairs of coordinates of points within the first area on the imaginary surface by continuously recording images of the part of the absolute-position-coding pattern which is located within the field of view of the pen. The pen recognizes that these absolute coordinates are to be stored in the buffer memory. When the user then places the pen in the box "store" or puts a cross in this box, the pen records coordinates of at least one point within the second area. The pen recognizes that these coordinates represent the command "store" and as soon as the pen makes contact with the computer with which it is synchronized, the pen transfers the recorded coordinate information to the computer via the Bluetooth transceiver. The computer stores the received information as an image which, for example, can be shown directly on the computer screen. Searching in the stored information can be done afterwards on the basis of the time of storing the information and on the basis of keywords which are written in block letters on the writing surface and which could thus be stored in character-coded format (ASCII) after character recogni-

tion (OCR). Other functions which can be found on a product of the type described above are, for example, "address book" which is then a box which is provided with another subset of the absolute-position-coding pattern which codes coordinates of points within an area on the imaginary surface which is dedicated to an address book function. When the pen recognizes the coordinates of this function, it sends address information, which is written in block letters on a subset of the absolute-position-coding pattern intended for this purpose, to the computer which stores the address information in a digital address book. Different subareas of the area on the imaginary surface can be dedicated to different address information items.

Information, the content of which needs to be interpreted so that it is possible for certain tasks to be executed in the system, is thus preferably written in block letters at present.

Communication applications require more "intelligence" of the product provided with an absolute-position-coding pattern. They also need access to the Internet. Loose sheets, sheets in a calendar, a notepad or the like can be constructed as forms for transmitting graphical e-mail, SMS, fax or the like. On the sheet, fields are printed which are intended for indicating address, subject, and message text. Address and subject are intended to be stated in block letters so that they

can be converted into character-coded format and understood by other units which are intended for managing information in character-coded format. The information in the message field can be made up of arbitrary graphical information. The sheet is also provided with a box to be crossed which, when it is marked, causes the pen to establish contact with the mobile telephone with which it is synchronized via the Bluetooth link. The mobile telephone identifies the message as a graphical e-mail which is intended for a predetermined server which is part of the information management system. Identification can be done with the aid of information which is stored in the mobile telephone itself or in a unit with which the mobile telephone is communicating. The mobile telephone transfers the message to the base station by using GPRS and then with the aid of TCP/IP to the predetermined server which decodes the address field and sends the message to the addressee via the Internet. A confirmation of the delivery to the Internet is shown on the display of the mobile telephone.

The above-mentioned sheet can be provided with a subset of the absolute-position-coding pattern which codes an area on the imaginary surface which is dedicated to sending e-mail. Different parts of the area can then represent the different fields and the box to be crossed. As an alternative, the different fields and the box to be crossed can be provided with different subsets of the

absolute-position-coding pattern which codes coordinates of points within areas which are dedicated to address information, specification of subject etc. The advantage of using a special subset of the absolute-position-coding pattern for the box to be crossed is that it can then be represented by the same subset every time it is used independently of whether it is, for example, on a page of a notepad or on an e-mail form.

Service applications are applications in which the information management is controlled via one or more predetermined servers. One example is an advertisement in a newspaper which is provided with a subset of the absolute-position-coding pattern which codes coordinates of points within an area on the imaginary surface which is dedicated to information which is to be sent to a predetermined server. This precise subset codes coordinates of points within a special partial area of the larger area, to which partial area the advertiser has obtained a sole right of use. As is evident, there can be larger areas on the imaginary surface which are dedicated to a certain information management purpose. These areas can then be divided into subareas to which different parties can have the sole right of use. In the server, which manages the larger areas, it is then noted which party has the right of use to the different subareas. As a result, a subset of the absolute-position-coding pattern can also make it

possible to identify the holder of the subarea within which the pattern is coding points.

In the case of the advertisement, a user can place an order by specifying a receiver address and crossing a send box with the aid of his digital pen. If the order requires payment, a credit card number can be specified. If the order relates to a gift to another receiver, a handwritten greeting to the receiver can be added on a writing area for free graphical information in the advertisement.

When the user crosses the send box, the information is sent to a predetermined server on the Internet in the same way as above. The information is decoded in the server. The holder of the subarea which corresponds to the advertisement is determined. After that, the decoded information is sent, possibly together with a greeting on a card, to the holder which processes delivery of the goods or service ordered.

In Applicant's Swedish Patent Application No. 9901954-9, an absolute-position-coding pattern is described which can be used as an alternative to the absolute-position-coding pattern described above. However, this pattern is less preferred because it codes fewer points.

In Applicant's Swedish Patent Application No. 9901953-1, a product is described which is intended to be used when recording information and which has a sur-

face on which there is a plurality of different information alternatives, each of which has an associated coding area with a code, the code in each coding area identifying a field on the surface in which the information alternative to which the code belongs is specified. The code can suitably be a subset of the absolute-position-coding pattern described above and is processed in the information management system described above. Special areas on the imaginary surface can be dedicated to being used for different products. As an alternative, a company which processes information which is recorded from a certain type of product can have the sole right of use to an area on the imaginary surface, and the company itself can design the appearance of its product and can enter in its computer system descriptions of how information from different fields, which are coded with the aid of different absolute positions on the imaginary surface, is to be interpreted.

In Applicant's Swedish Patent Application No. 9901955-6, a calendar is described which can be provided with a position-coding pattern to enable digital storage of notes which are written by hand in the calendar. Each note in the calendar is stored associated with a time or a time interval. The position-coding pattern is advantageously a subset of the absolute-position-coding pattern described above. An area of the imaginary surface can suitably be dedicated to time-related information, such

as calendar information. The area can be divided into subareas which correspond to different time intervals. In this way, notes which are made in a calendar and which are recorded digitally in the form of coordinate sequences can be related to different times or time periods depending on where in the area dedicated to time-related information the points represented by the coordinates are located.

Applicant's Swedish Patent Application No. 9902436-6 describes a method of recording information digitally from an information carrier by overlaying a position-coding pattern, which is located on a transparent sheet, on the information carrier and imaging the information with a plurality of part-images and putting the part-images together with the aid of the position-coding pattern. The position-coding pattern is advantageously a subset of the absolute-position-coding pattern described above, but possibly with different graphical configuration of the symbols. An area on the imaginary surface can be dedicated to this application so that the subset of the absolute-position-coding pattern which is located on the transparent sheet codes absolute positions on the imaginary surface, so that the intended application of putting together part-images can be identified on the basis of the coordinates.

Applicant's Swedish Patent Applications No. 9903051-2 and 0000953-0 describe different variants of

a product having a writing surface which is provided with a position code for enabling electronic recording of information which is written on the writing surface by means of a device which detects the position code. The product also has at least one activation icon which, when it is detected, causes the device to initiate a predetermined operation which utilizes the information recorded by the device. The position code is advantageously made up of a subset of the absolute-position-coding pattern described above, the writing surface suitably being provided with a first subset of the absolute-position-coding pattern which codes coordinates of points within an area on the imaginary surface which is dedicated to recording notes.

The activation icon can correspond to the function box or fields described above. It is suitably provided with a second subset of the absolute-position-coding pattern which code coordinates for at least one point on the imaginary surface which is dedicated to initiating the predetermined information. This subset can be used consistently in the system for the activation icon in question independently of on which surface or in connection with which surface it occurs.

In Applicant's Swedish Patent Application No. 9903052-0, a system for presenting information is described, which comprises a writing tablet or whiteboard which is provided with a position-coding pattern

for producing an electronic representation of what is written on the writing tablet. The position-coding pattern is advantageously made up of a subset of the absolute-position-coding pattern described above. The subset can also suitably code absolute coordinates of points within an area on the imaginary surface which is dedicated to this application.

In Applicant's Swedish Patent Application No. 9904744-1, it is described that a device can be controlled with the aid of commands which are written by hand with the aid of the device and, at the same time, are recorded digitally by the device. The command can preferably be written on a surface which is provided with a subset of the absolute-position-coding pattern described above. The subset also suitably codes coordinates of at least one point within an area of the imaginary surface which is dedicated so that information, which is written on this subset, is interpreted as commands. This subset is consistently used for command fields on different surfaces.

In Applicant's Swedish Patent Application No. 9904745-8, an information management system is described, which resembles the information management system described above. Information is recorded in the form of coordinates and sent to a server which determines to which of a plurality of areas on an imaginary surface the coordinates belong. Processing of the received infor-

mation is determined by rules which are linked to a respective area. The absolute-position-coding pattern which is used for recording of information can be configured in the manner described above. An area on the imaginary surface can be dedicated for all information, which is written on a subset of the absolute-position-coding pattern which codes coordinates of points which are located within this area, to be sent to a predetermined server. The area can be divided into subareas each of which is held by an holder who can specify how the information belonging to this subarea is to be processed.

In Applicant's Swedish Patent Application No. 9904746-6, a payment product is described, which has a writing area which is intended for the signature of a user and which is provided with a first position-coding pattern which enables the signature to be digitally recorded. The first position-coding pattern constitutes a subset of a second position-coding pattern which advantageously can be the above-mentioned absolute-position-coding pattern. The first position-coding pattern which is located on the payment product can be a subset which codes coordinates of points which are located within an area of the imaginary surface which is dedicated to managing payment products. The area can be divided into subareas each of which is dedicated to a unique user. The subarea of each user can then be divided further into smaller areas which are dedicated to specific payment

products and even individual specimens of payment products. Information which is recorded with the aid of the subset which represents the area dedicated to management of payment products is preferably always sent to a predetermined server where different forms of authenticity checks can be carried out. Especially, the signature of the user can be compared with a previously stored signature with respect to one or more of the following parameters: the speed with which different parts of the signature have been written, the pressure on the pen point in different parts of the signature, the angle of the pen and/ or the turning of the pen in different parts of the signature.

A payment product can be a credit card which is provided on its reverse with a subset of the absolute-position-coding pattern. The user can then verify his identity by writing his signature on the pattern with the aid of a digital pen which, however, does not leave any colorant on the card. The signature is sent to a server for authenticity check.

In Applicant's Swedish Patent Application No. 0000940-7, a product is described, for example an advertisement or an order form, which has a writing field for receiving handwritten information and an address field for receiving address information, the writing field being provided with a position-coding pattern which can advantageously be made up of a subset of the absolute-

position-coding pattern described above. The address field is provided with an address-coding pattern which can advantageously be coded with the same type of graphical coding as is described above for the absolute-position-coding pattern and based on the same basic principles. The subset of the absolute-position-coding pattern which is arranged on the writing field advantageously codes coordinates of points within an area on the imaginary surface which is dedicated to handwritten information, and especially a subarea of this area which is dedicated to the company which is behind the advertisement or ordering form. Information which is recorded by the user writing in the advertisement is sent to the address which is coded in the address field in response to the user drawing a line through the address field. As an alternative, the advertisement can be provided with an order function box with a subset of the absolute-position-coding pattern which is dedicated to sending information to a server which, either on the basis of the coordinates in the order function box or on the writing surface, identifies the company to which the order is to be forwarded, possibly after certain processing.

In Applicant's Swedish Patent Application No. 000941-5, a method for sending graphical messages is described. An area on the imaginary surface can be dedicated to managing graphical messages. This area can be divided into subareas which are dedicated to different

fields on a message blank in the same way as is described above with respect to graphical e-mails.

In Applicant's Swedish Patent Application No. 0000942-3, a method for controlling a user's access to an access-protected unit is described, the method comprising recording of at least one pair of coordinates from a base which is provided with a position-coding pattern. The position-coding pattern can be advantageously made up of a subset of the absolute-position-coding pattern described above. The subset suitably codes coordinates of at least one point within an area of the imaginary surface, the area being dedicated to controlling access to access-protected units. The area can be divided into subareas, each such subarea being dedicated to a specific user.

In Applicant's Swedish Patent Application No. 0000944-9, an electronic information service in a computer system is described, which service makes it possible for a user to write information in different places on a virtual pixel surface. The pixel surface can advantageously be defined by a subset of an absolute-position-coding pattern of the type described above. The subset can suitably code coordinates of points within an area on the imaginary surface which is dedicated to the use of this information service.

In Applicant's Swedish Patent Application No. 0000945-6, an arrangement for inputting graphical infor-

mation into a computer system is described. This arrangement comprises a base which is provided with a first position-coding pattern for recording graphical information and a second position-coding pattern for recording information relating to visual characteristics associated with graphical information. The first position-coding pattern can advantageously be a first subset of the absolute-position-coding pattern described above. This subset can suitably code coordinates of positions within an area on the imaginary surface which is dedicated to graphical inputs. The second position-coding pattern is advantageously a second subset of the absolute-position-coding pattern described above. This second subset suitably codes coordinates of positions within a different area on the imaginary surface which is dedicated to defining visual characteristics. This area can be divided into subareas which define different visual characteristics. As an alternative, the entire graphical interface can be provided with a subset of the absolute-position-coding pattern, the subset corresponding to an area on the imaginary surface which is intended for coding graphical interfaces of this type, different fields on the graphical interface corresponding to different parts of the dedicated area.

In Applicant's Swedish Patent Application No. 0000964-4, a credit card receipt is described, which is provided with a position-coding pattern. This pattern

can advantageously constitute a subset of the absolute-position-coding pattern described above. The subset suitably codes coordinates of at least one point within an area on the imaginary surface which is dedicated to managing digital credit card receipts.

In Applicant's Swedish Patent Application No. 0000948-0, a floor is described, which makes it possible to control an automatic self-propelled vehicle. The floor is provided with a position-coding pattern. This can advantageously be made up of a subset of the absolute-position-coding pattern described above. The subset suitably codes coordinates of points on an area of said imaginary surface which is dedicated to controlling self-propelled vehicles.

In Applicant's Swedish Patent Application No. 0000949-8, a variant of the absolute-position-coding pattern described above is disclosed, in which one or more of the dots (markings) contain further information which is readable at a second spatial resolution level. The information is coded as variations in the configuration of the dots. A certain area on the imaginary surface can be dedicated to coding further information with a different spatial resolution in the absolute-position-coding pattern. It can thus be the case that only a certain subset of the absolute-position-coding pattern has this extra information. When coordinates which are coded by this subset are detected, the information management sys-

tem can thus establish that further reading of the absolute-position-coding pattern with a different spatial resolution is to be done.

In Applicant's Swedish Patent Application No. 0000950-6, a product is described which has a surface which is provided with an image which is printed by screen-printing technique, in which the blacking is varied by varying the sizes of the dots. Further information can be coded in the image by the raster points being displaced from their normal position in the same way as is described above for the absolute-position-coding pattern. An area on the imaginary surface can be dedicated to storing information or positions in an image.

In Applicant's Swedish Patent Application No. 0000951-4, a method for determining an angle between a digital pen and a base with a position-coding pattern is disclosed. This method can be used in the information management system described above.

In Applicant's Swedish Patent Application No. 0000952-2, an information management system is described, in which the digital pen records information from a surface with a position-coding pattern, which advantageously can be a subset of the absolute-position-coding pattern described above. This subset suitably codes coordinates of points within an area on the imaginary surface which is dedicated to the pen, when it detects coordinates within this area, sending two or more coordinates

to a predetermined server which determines to which subarea of the area these coordinates belong and returns an address which is associated with this subarea to the digital pen which can then send all the recorded information to the specified address. Different companies can thus acquire sole right of use to different subareas and in this way control that the information which is recorded with the aid of a subset of the absolute-position-coding pattern is sent directly to them.

Furthermore, in Applicant's Swedish Patent Application No. 0000954-8, a method for editing document information in a computer-stored document is described, the document information being printed out on a writing surface which is provided with a position-coding pattern.

The position-coding pattern can advantageously be a subset of the absolute-position-coding pattern described above. This subset can code coordinates of points within an area on the imaginary surface which is dedicated to document editing so that the editing information which is written on the writing surface with a digital pen is transferred to a computer with which the digital pen is synchronized.

In summary, different areas on the imaginary surface can thus be dedicated to different purposes. In this manner, both information recording and controlling of the processing of information can be done.

What we claim and desire to secure by Letters Patent is:

1. A global information management system which is intended for managing information which is represented in the form of absolute coordinates and which is based on use of an absolute-position-coding pattern which defines an imaginary surface which consists of all points, the absolute coordinates of which can be coded by the absolute-position-coding pattern, at least two unique areas are defined on the imaginary surface, each of which is dedicated to a predetermined information management, so that the management of an information item which is represented by the absolute coordinates of at least one point on the imaginary surface is done on the basis of where the point is placed on the imaginary surface.

2. An information management system comprising a computer system which stores information about the location of the unique areas on the imaginary surface.

3. An information management system according to claim 1 or 2, in which, on the imaginary surface, at least one function area is defined, which is dedicated to represent a function, so that detection of the absolute coordinates of a point within this function area results in execution of said function.

4. An information management system according to claims 2 and 3, in which the computer system stores

(continued)

(continued claim 4)

information about the location of said at least one function area on the imaginary surface.

5. An information management system according to claim 4, in which said function is one of the functions to store information, to send information and to convert information.

6. An information management system according to claim 2 or 4, in which the computer system stores information items about a holder of at least one of said information management areas.

7. An information management system according to any one of the preceding claims, further comprising at least one digital pen which is arranged to record absolute coordinates from a product which is provided with a subset of said absolute-position-coding pattern.

8. An information management system according to claim 7, in which said absolute coordinates, which are recorded by the pen, represent graphical information which is written with the pen on said subset of the absolute-position-coding pattern.

9. An information management system according to any one of the preceding claims, further comprising at least one product which is provided with at least one subset of said absolute-position-coding pattern.

10. A product which is intended to be used in a global information management system according to any one of

(continued)

(continued claim 10)

claims 1-9, the product having a writing area which is provided with a first subset of the absolute-position-coding pattern to enable digital recording of graphical information which is written on said first subset, and a function field which is provided with a second subset of the absolute-position-coding pattern, the second subset defining a function which is to be executed with respect to the graphical information recorded.

11. A product according to claim 10, in which the first and the second subset of the absolute-position-coding pattern code absolute coordinates which belong to different areas on the imaginary surface.

12. A method for managing information which is represented by absolute coordinates, comprising the steps of defining at least two unique areas, each one of which is dedicated to a predetermined information management, on an imaginary surface which consists of all the points, the absolute coordinates of which can be coded by an absolute-position-coding pattern, so that the management of an information item which is represented by the absolute coordinates of at least one point on the imaginary surface is done in dependence on where said point is placed on the imaginary surface.

13. A method according to claim 12, furthermore comprising the step of giving a party sole right to use a

(continued)

(continued claim 13)

subset of the absolute-position-coding pattern which codes coordinates within a predetermined area on the imaginary surface.

Abstract of the Disclosure

An information management system is intended for managing information which is represented in the form of absolute coordinates. The system is also based on use of an absolute-position-coding pattern which defines an imaginary surface which consists of all points, the absolute coordinates of which can be coded by the absolute-position-coding pattern. On the imaginary surface, at least two unique areas are defined, each one of which is dedicated to a predetermined information management, so that the management of an information item which is represented by the absolute coordinates of at least one point on the imaginary surface is done on the basis of where the point is placed on the imaginary surface. A product and a method are also shown.

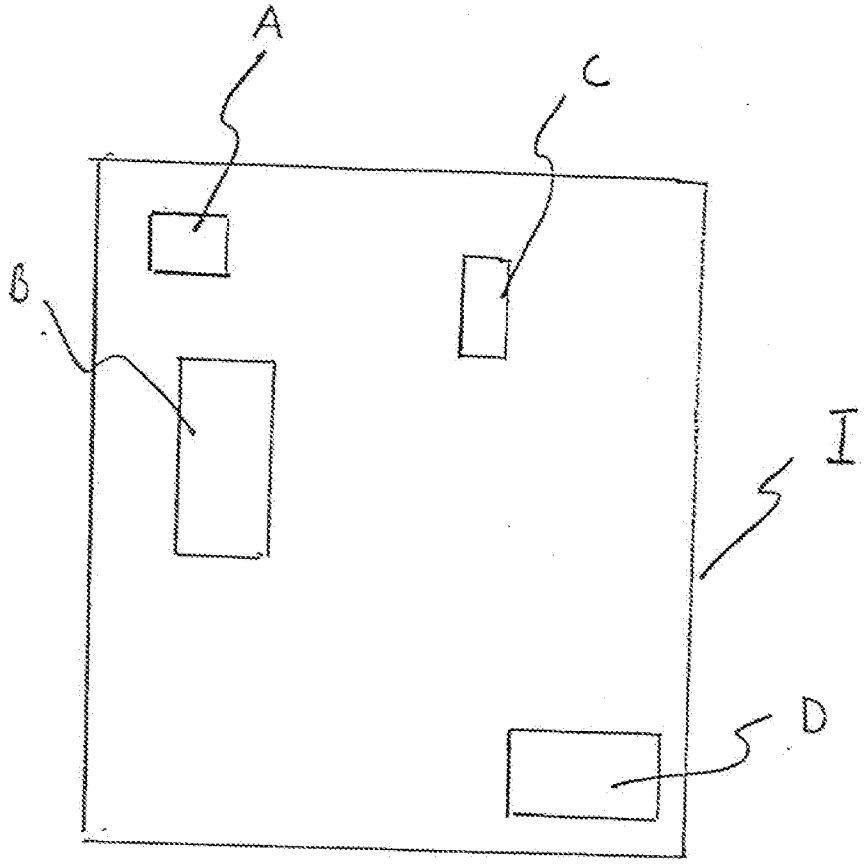


Fig. 1

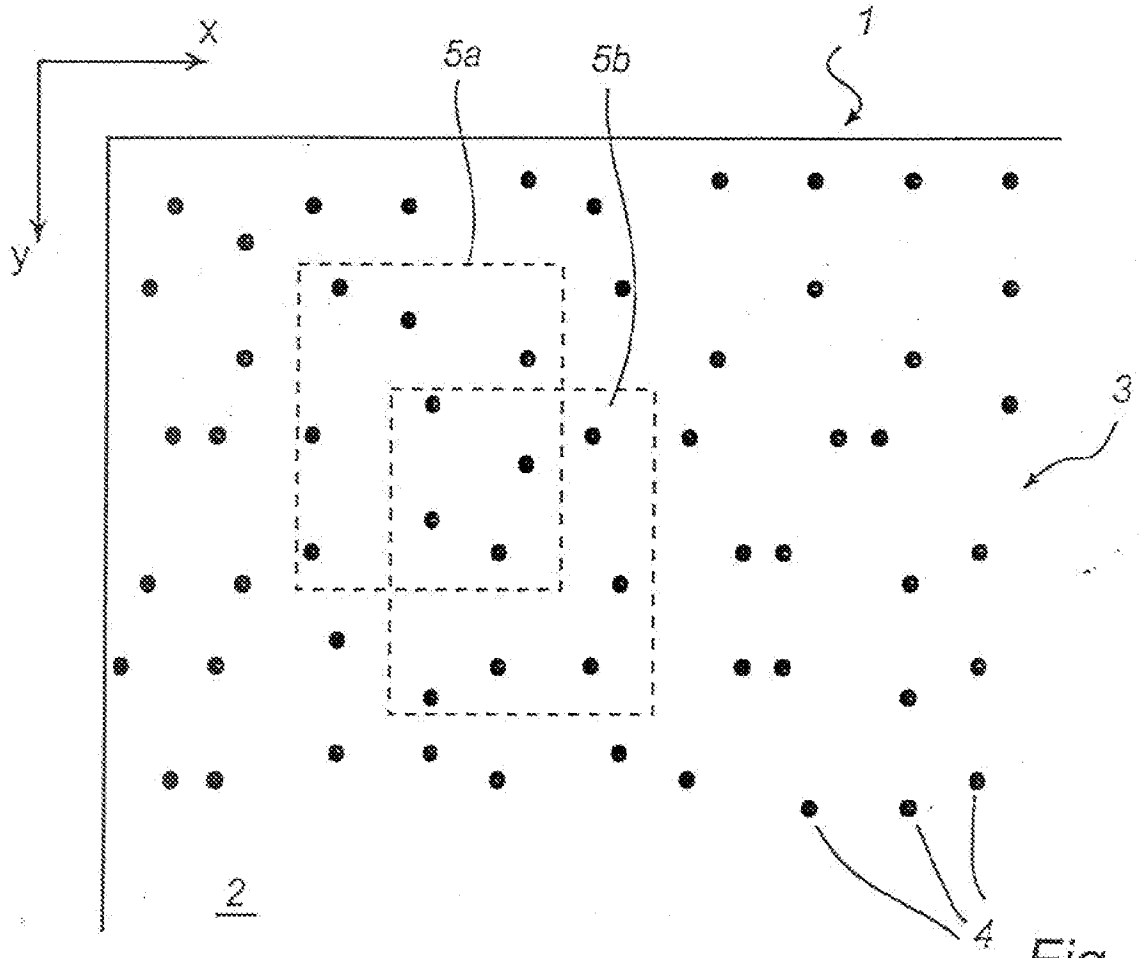


Fig. 2

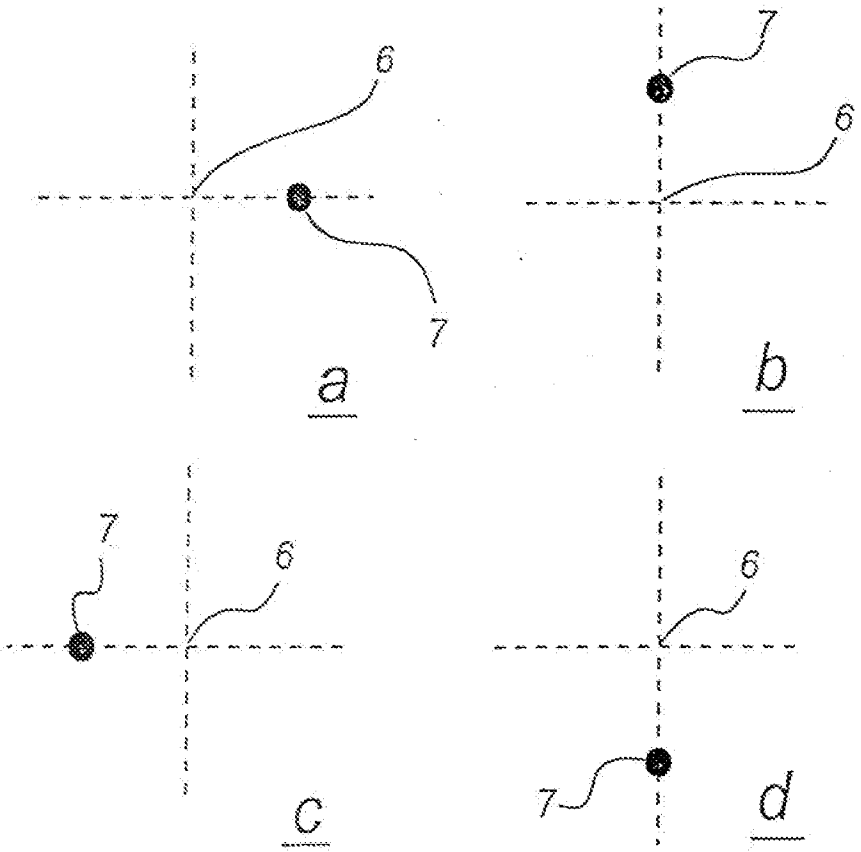


Fig. 3

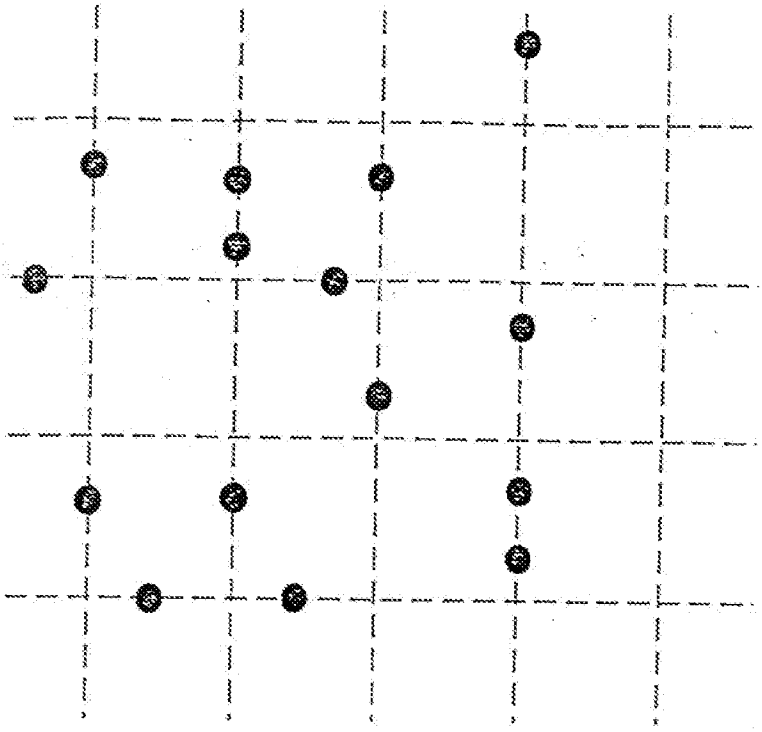

Fig. 4

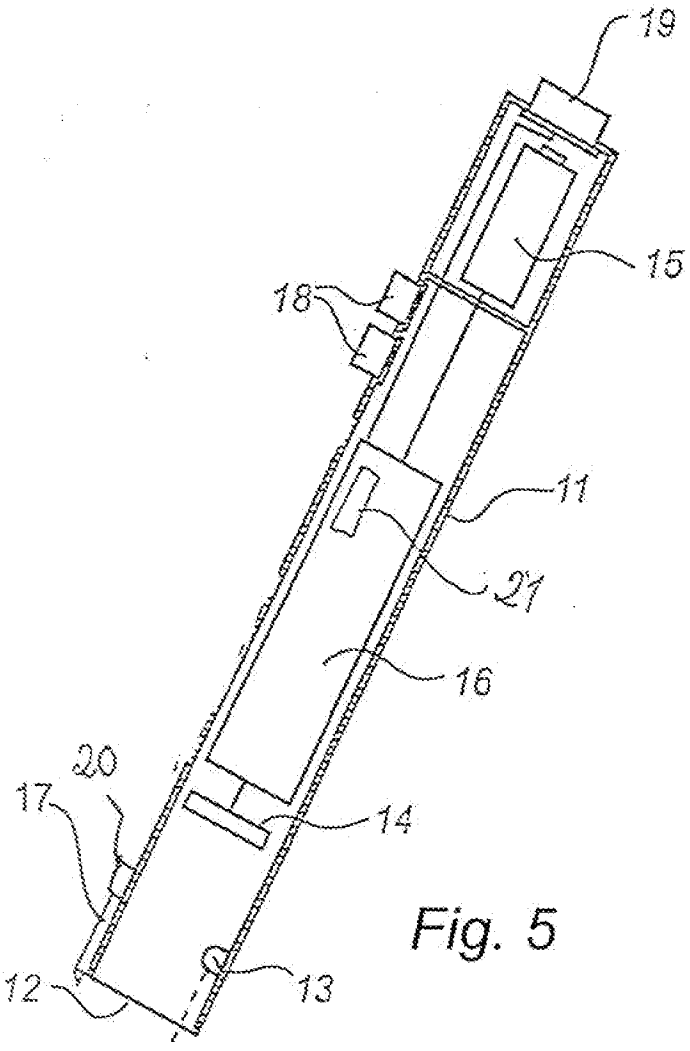


Fig. 5